National Aeronautics and Space Administration
**Lyndon B. Johnson Space Center**
Houston, Texas

**Wonder years**

JSC employees and retirees celebrate space milestones at Space Center Houston. Photos on Page 3.

**Camp-O-Ree**

The Boy Scouts of America learn teamwork skills during a weekend campout at JSC. Story on Page 4.

# Space News Roundup

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## Cross training begins for U.S. astronauts

**By Karen Schmidt**

For the first time in formal flight training last week, American astronauts donned Russian space suits and simulated space walking.

Meanwhile, Cosmonaut Researcher Shannon Lucid completed the first of five months in space aboard the Russian Mir Space Station.

Astronauts Jerry Linenger — scheduled to replace the third American on Mir — and backup Mike Foale suited up in a Russian Orlan space suit last week and trained in the Hydrolab. The Hydrolab is Russia's equivalent to JSC's Weightless Environment Training Facility and simulates the weightlessness of space.

Russia is not the only place astronauts will wear the Orlan suit.

"The suit will be used to develop interoperable hardware for the International Space Station" said Don McMonagle, chief of the EVA Projects Office. As necessary, the suit can also be used to train astronauts."

Although there are differences in the Russian and American versions—sizing, suit pressure and range of motion—work is under way to develop common hardware for the space station.

"We will use the suit to verify suit compatibility with new hardware such as shuttle/Mir external experiments, station assembly and maintenance tasks and common EVA aids like foot restraints," said Richard Fullerton, Joint EVA Working Group co-chairman in the JSC EVA Projects Office. "Most importantly, it serves as a project where both sides work together to develop

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**Above: From left, Roland Daley, Steve Anderson and Colin Campbell of Hamilton Standard watch as the Russian extravehicular space suit is lowered into the pool in Bldg. 29. The Orlan suit will be used to train astronauts and cosmonauts for the International Space Station. Left: Weightless Environment Training Facility Divers, Rod Stark, left, and Doug Begnaud of Johnson Engineering, monitor the Russian Orlan suit as it undergoes testing.**

JSC Photos by Robert Markowitz and Mark Sowa

## Testing shows payloads ready on *Endeavour*

On Launch Pad 39B at Kennedy Space Center, work on *Endeavour* continued this week, preparing the payloads of STS-77 for launch.

Shuttle managers plan to meet Tuesday for a final review of launch preparations and to set an official launch date. Launch is targeted for no earlier than May 16.

*Endeavour* Commander John Casper, Pilot Curt Brown and Mission Specialists Andy Thomas, Dan Bursch, Mario Runco and Marc Garneau, along with Lead Flight Director Wayne Hale and technical experts associated with the payloads, discussed the flight's objectives Tuesday in a series of press briefings on NASA Television.

*Endeavour* will deploy and retrieve two free-flying spacecraft, one a Spartan satellite with an inflatable antenna, and the other a PAMS-STU spacecraft, part of the Technology Experiments Advancing Missions in Space payload. In the cargo bay will be the pressurized Spacehab module containing a variety of experiments, and a dozen Get-Away-Special canisters sponsored by investigators from the U.S., Canada and Europe.


During the 10-day mission, astronauts will perform a total of four rendezvous operations with the two satellites—the most ever in a single space shuttle flight.

Spartan, which passed its interface verification tests this week, will carry the the Inflatable Antenna Experiment and measure the accuracy of the surface at a variety of internal pressures and thermal conditions. The shuttle crew will station-keep with the PAMS-STU satellite to investigate a new laser-based attitude control system.

"The Spartan is doing something new and unique this time," Hale said. "This time we are not using it for astronomy. This is an example of NASA's new philosophy on faster, cheaper, smarter payloads. We are using it as a construction site in space."

The IAE is a prime example of a low-cost technology validation experiment. The experiments are designed to inexpensively test the fundamental performance of technologies in the weightless, vacuum environment of space when it is impossible to do so on the ground. Inflatable systems cannot be evaluated on Earth due to the effects of gravity and atmospheric pressure on the balloon structure. They must be tested on-orbit and the results compared with analytical predictions to achieve the confidence necessary to allow their use in operational systems.

Four experiments are included in TEAMS payload. The Vented Tank Resupply Experiment will look at techniques for resupplying gases and liquids on orbit. The Global Positioning System Attitude and Navigation Experiment, will test both a receiver processor and an inertial reference unit being considered for use on the International Space Station. The Passive Aerodynamically-Stabilized Magnetically-Damped Satellite, actually a subsatellite, will test a laser-based attitude control system. And the Liquid Metal Thermal Experiment will test three liquid metal heat pipe designs.

"On this flight we will be performing four rendezvous," Casper said. "The techniques and procedures from the rendezvous will help future space shuttle flight particularly those flights that go to the International Space Station."

*Endeavour* also will carry the Brilliant Eyes Ten-Kelvin Sorption Crycooler Experiment, designed to evaluate the use of such cooling beds for use on future astrophysics, Earth-observing and surveillance satellite systems.

Elsewhere at KSC, payload verification tests are complete on *Columbia*, scheduled for the STS-78 flight on June 20. The external tank was mated with the solid rocket boosters today and plans to roll the stack to the Vehicle Assembly Bldg. are set for May 23. Space shuttle *Atlantis* is in preparation for the late July flight of STS-79, which is scheduled to dock with the Mir.

## Process begins to establish institute

**By Eileen Hawley**

NASA took the first step Wednesday in awarding a cooperative agreement to establish a National Space Biomedical Research Institute to lead efforts in biomedical research with the release of a draft solicitation for proposals.

Using NASA's expertise in space life sciences, its unique facilities and engineering assets, the NSBRI will support a wide variety of basic and applied biomedical sciences designed to support the presence of humans in space and to use that knowledge to enhance life on Earth.

"The concept of the Biomedical Research Institute is in keeping with our plans to more closely bind NASA's scientific knowledge and our immense engineering and technical resources to the community," said JSC Director George Abbey. "This will reinforce our links with the external community and put NASA-driven technology in the hands of the business and academic community where it can be used to help people in everyday life."

A draft cooperative agreement notice to solicit proposals for establishing the NSBRI was issued Wednesday. The CAN is available electronically under business at URL: http://www.jsc.nasa.gov/bd2/

NASA will provide core funding, in addition to research opportunities funded through yearly competitions, to ensure a focused and successful endeavor. The overall period of the cooperative agreement will be 20 years, a five-year initial period, with the option of three five-year extensions.

The NSBRI is part of the NASA Science Institutes concept announced by NASA Administrator Daniel S. Goldin last year.

## *Employees reach out*

### Volunteers make difference by tutoring

**By Mae Mangieri**

When 100 seniors at Stephen F. Austin Senior High School received the daunting news last week that they might not be allowed to graduate because of low test scores, JSC volunteers were there to help.

Forty-three civil service and contractor employees sat down one-on-one with the students and tutored them in the math and reading skills they will need to pass the Texas Academic Achievement Skills Test, or TAAS, when they retook the test this week.

The effort was part of a comprehensive program to support the Houston Independent School District school. JSC's Education Outreach Program arranged for the intensive one-day tutoring session last Friday.

The students said they appreciated the extra help as well as the encouragement and support they received from their tutors.

"It was really great that the people of NASA took time out of their busy day to come out and motivate us to do our best on the TAAS test," wrote Jesse Gomez who received math tutoring from Ray Rodriguez of Hughes Training.

Ginger Kerrick from the Space Station Training Division tutored Monica Canales on the math section of the TAAS test.

"Ginger was very helpful and also very patient with me," wrote

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Photo by Dan Mangieri

**Dennis Beckman of Mission Operations' Space Flight Training Division helps Austin High School student John Cerros study for the math section of the Texas Academic Achievement Skills Test.**

## Candidates named for '96 astronaut class

Thirty-five astronaut candidates will arrive at JSC on August 12 to begin a period of training and evaluation.

This year's class consists of 10 pilot and 25 mission specialist candidates selected from more than 2,400 applicants. The class of 1996 is the largest class selected since the first class of shuttle astronauts, also numbering 35, was named in 1978.

Following about one-year of evaluation and training, the astronauts will receive technical assignments within the Astronaut Office to further prepare them for shuttle flight assignments.

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